[020] The dual clutch-brake combination according to the invention is particularly appropriate for the control of an all-wheel distributor gearbox 70 for a vehicle 72 with several driveable axles 74, 76, with a variable longitudinal differential lock 78 and an at least two-stage shiftable range gear system 80 arranged after a main gearbox T of the vehicle 72. The longitudinal differential lock 78 of the all-wheel distributor gearbox 70 comprises a clutch 77 which, depending on the degree of its closure, transfers a torque between the two driveable axles 74, 76 of the vehicle 72. The longitudinal differential lock 78 of the all-wheel distributor gearbox 70 comprises a clutch 77 which, depending on the degree of its closure, transfers a torque between the two driveable axles 74, 76 of the vehicle 72. The range gear system 80 comprises a shift element 82 such that the said shift element 82 of the range gear system 80 can be actuated directly or via an actuation mechanism by the first drive output shaft 4 of the dual clutch-brake combination 8. The degree of closure of the clutch 82 of the longitudinal differential lock 78 can be varied by a rotation of the second drive output shaft 6.

[023] Fig. 1 is a section through a dual clutch-brake combination in a first shift position[[, and]];

[024] Fig. 2 is a section through a dual clutch-brake combination in a second shift position, and

[025] Fig. 3 is a diagrammatic representation of the vehicle drive train.

[027] Fig. 1 shows a drive input shaft 2 of a dual clutch-brake combination 8, a first drive output shaft 4, and a second drive output shaft 6. The input shaft 2 is engaged with the drive output shaft 10 of an electric motor ~~(not shown)~~ 66, which is held in rotationally fixed connection by a keyway joint 12. The drive shaft 2 and the two drive output shafts 4, 6 are axially fixed by bearings 14, 16, but mounted so that they can rotate in a two-part housing 18, 20 of the dual clutch-brake combination 8. On the first drive output shaft 4 is arranged a flange 21, which has at its outer circumference a shoulder 22 whose end face forms a friction surface 24, which is provided in order to cooperate with an opposing friction surface 26 of the clutch armature 28. The clutch armature 28

is connected to a flange 30 of the drive input shaft 2 by an annular disk spring (not shown), rotationally fixed but able to move axially. In the shift position (shown in Fig. 1), a magnetic coil 32 of the clutch is energized with current. Accordingly, the armature moves so that the magnetic circuit establishes contact between the friction surfaces 24, 26 of the flange 21 and the clutch armature 28. Thus, when the magnetic coil of the clutch is switched on, the clutch armature 28 is pressed against the flange 21 so that by virtue of the friction surfaces 24, 26 a torque is exerted by the clutch armature 28 connected to the drive input shaft 2 on the flange 21 connected to the first drive output shaft 4. On its side facing towards the magnetic coil of the clutch, the clutch armature 28 has a hollow cylindrical section which encloses the outer circumference of the magnetic coil 32 of the clutch with a small radial clearance. When the magnetic coil 32 of the clutch is switched off, the armature is moved by an annular disk spring 34 (shown in Fig. 2) toward the right as seen in Fig. 2, into its second shift position, and held there. In this shift position, the friction surfaces 24 and 26 of the flange 20 and the clutch armature 28 are axially separated, so no torque is transferred between the drive input shaft and the first drive output shaft. However, in this second shift position, inner gear teeth 36 present in a hollow cylindrical area 38 of the clutch armature 28 are engaged with drive gear teeth 40 formed on the outer circumference of a flange 42 connected to the second drive output shaft 6. The flange 42 connected to the second drive output shaft 6 is axially stepped, such that the drive gear teeth 40 are formed on a radially outer step 44 and an annular disk spring 48 is attached to a radially inner step 46, which connects a brake armature 50 of an electromagnetic brake 52 rotationally fast, but axially movably to the second drive output shaft 6. The brake armature 50 is attracted by a magnet element 54 of the electromagnetic brake 52 when a brake magnet coil 56 is energized with current. The electromagnetic brake 52 can be actuated independently of the electromagnetic clutch, so that all four shift conditions can be implemented. In particular, it is possible, first, when the clutch magnet coil 32 is switched off, to impose a given torque on the second drive output shaft 6 by means of the input electric motor 66, which determines the torque transmission in the variable longitudinal differential lock 78 of a distributor gearbox 70 of a vehicle 72. If the

electromagnetic brake 52 is now switched on, this torque is still applied statically to the second drive output shaft 6 even when the clutch magnet coil 32 is energized with current and the connection between the clutch armature 28 and the second output shaft 6 is disengaged. The electric motor 66 can then be used to activate the first drive output shaft 4, by which the range shift between a slow-drive range and a fast-drive range is brought about.

1-9. (CANCELED)

10. (PREVIOUSLY SUBMITTED) An electromagnetically actuated dual clutch-brake combination (8) for the optional drive connection of a drive input shaft (2) to one of a first drive output shaft (4) or a second drive output shaft (6), with a clutch armature (28) connected rotationally fast to the drive input shaft (2), which can be moved axially between a first shift position and a second shift position, and which is connected to transmit torque to the first output shaft (4) in the first shift position and to the second output shaft (6) in the second shift position, with a clutch magnet coil (12) attached on a housing, which brings the clutch armature (28) to the first shift position when energized by electric current, with restoring means (34) which move the clutch armature (28) to the second shift position when the clutch magnet coil (32) is switched off, and with an electromagnetic brake (52) which comprises a brake magnet coil (56) attached to the housing and an axially movable brake armature (50), the brake armature (50) being connected rotationally fast to the second drive output shaft (6), which is braked when the brake magnet coil (56) is energized with electric current.

11. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 10, wherein the clutch armature (28) has at one end a friction surface (26) which in the first shift position is pressed against an opposite friction surface (24) of a first flange (20) fixed on the first output shaft (4).

12. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 10, wherein the clutch armature (28) has a hollow cylindrical area (38) provided with inner gear teeth (36) which, in the second shift position, engage with the drive gear teeth (40) of a second flange (42) arranged on the second output shaft (6).

13. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 12, wherein the second flange(42) is axially stepped, the drive teeth being formed on a radially outer step (44), and an annular disk spring (48) being attached to the radially inner step (46), which connects the brake armature rotationally fast and axially movably to the second flange (42).

14. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 12, wherein the second output shaft (6) is constructed as one piece with the second output shaft (42).

15. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 12, wherein the second output shaft (6) and the second flange (42) have a through-going hollow space along a rotational axis, through which the first output shaft (4) passes.

16. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 12, wherein a widened hub of the first flange (20) adjoins, at a small axial distance away, the radially inner step (46) of the second flange (42), such that, at least in part, the hub occupies the same axial structural space as the radially outer step (44) of the second flange (42).

17. (PREVIOUSLY SUBMITTED) The electromagnetically actuated dual clutch-brake combination according to claim 15, wherein the first output shaft (4) extends axially over the area of the first flange (20) and passes into a hollow cylindrical area (58) of the drive input shaft (2), in which it is mounted.

18. (CANCELED)

19. (NEW) The electromagnetically actuated dual clutch-brake combination according to claim 10, for operation with a vehicle comprising:

an all-wheel distributor gearbox;

at least two driveable axles;

a variable longitudinal differential lock having a clutch which transmits a torque between the at least two driveable axles of the vehicle, depending on a degree of the closure of the clutch;

an at-least two-stage shiftable range gear system having a shift element and arranged after the main gearbox of the vehicle; and

wherein the shift element of the range gear system may be actuated by the first drive output shaft (4) of the electromagnetically actuated dual clutch-brake combination while maintaining the degree of closure of the clutch longitudinal differential lock according to the rotation of the second drive output shaft (6).